REMARKS

Claims 9-33 are pending in the present application. Reconsideration and withdrawal of the present rejection in view of the comments presented herein are respectfully requested.

Rejection under 35 U.S.C. 103(a)

Claims 9-33 were rejected under 35 U.S.C. §103(a) as being unpatentable over Miller et al. (US 5,427,886) in view of Hsu (US 6,051,305). The Examiner contends that it would have been obvious to use any of the known imaging compositions, including that of Miller, in the press of Hsu, and that one would have had a reasonable expectation of success in doing so.

Present claim 9 recites:

> 9. A liquid toner digital press imaging system comprising a liquid toner digital press imaging composition and a printable substrate, wherein the imaging composition comprises a fine particulate toner dispersed in a liquid vehicle together with a binder, and a security ingredient which is a reactant, and the printable substrate carries a complementary reactant, wherein said dispersed particulate toner can be applied to the printable substrate to form a toner image, and the reactant is reactable with the complementary reactant to produce a recognizable security feature that is detectably retained in or on the substrate in the event of fraudulent alteration or removal of the toner image.

Present claim 10 additionally recites that "the security feature comprises a colored, fluorescent or chemically-detectable image having the same configuration as the toner image." Claim 16, which relates to an anticounterfeiting method, recites the same imaging composition as recited in claim 9. Present claims 9, 10 and 16 recite at least the following distinctive features:

A. a digital press imaging system in which a liquid toner is applied to a substrate to form two independent images:
   a. a toner image that is formed by binding a particulate toner to the substrate; and
   b. a security feature that is formed by the reaction of a security ingredient in the liquid toner (a reactant) with a complementary reactant carried by the substrate, and is detectably retained on the substrate after removal of the toner image,
B. a liquid toner digital press imaging composition, which is applied to the substrate to form the images,
C. the liquid toner imaging composition includes two imaging components for forming two separate images,

D. the liquid toner imaging composition includes a fine particulate toner dispersed in a liquid vehicle, that can be applied to the substrate to form a toner image, and

E. the liquid toner imaging composition includes a reactant, and the substrate includes a complementary reactant, which react to form the security feature.

Miller et al. discloses a process for forming an image that comprises "*preparing microcapsules in an aqueous manufacturing vehicle*" (column 1, lines 36-38), the microcapsules:

- comprising "*a chromogen and a photosensitive composition*" (column 1, lines 39-40); and
- being "*adhered to a substrate along with an acidic developer material in substantially contiguous relationship*" (column 1, lines 47-49).

According to this process, "*certain of the microcapsules are imagewise ruptured upon selective application of a thermal energy input ... so as to enable the chromogen to react with the acidic developer material to produce a color*" (col.1 lines 51-55).

At page 3 of the Office Action, the Examiner acknowledges that Miller et al. fails to teach the digital press system of the instant application. In addition Miller et al. fails to teach or suggest (see present application, claim 9):

- "a liquid toner digital press imaging composition [comprising] a fine particulate toner dispersed in a liquid vehicle together with a binder, and a security ingredient ..."; and
- that "said dispersed particulate toner can be applied to the printable substrate to form a toner image".

Miller et al. also disclose a chromogen within the core material of the microcapsules that reacts with an acidic developer material upon selective application of a thermal energy input (see Miller et al., col. 1, lines 52-55). In this arrangement, the "[micro]capsules are adhered to a substrate along with an acidic developer material in substantially contiguous relationship" (Miller et al., col. 1, lines 47-49). Therefore, the chromogen and the acidic developer are both contained within a coating carried by the substrate, whereas in the present claims the security ingredient (e.g., a chromogen) is part of the liquid toner imaging composition and the complementary reactant is carried by the substrate.

In Miller et al., the image is formed by "selective application of a thermal energy input..." (see Miller et al., col.1, lines 52-54) on the substrate that comprises both the reactant

(microcapsules with a chromogen) and the complementary reactant (acidic developer material). Since the reactant recited in the present claims is in the liquid toner, and the complementary reactant is carried by the substrate, there is no need for microcapsules to prevent a *premature* reaction with the complementary reactant. In this application, the image is produced by a common digital printing process. However, the presently claimed imaging system provides a substrate comprising a security feature hidden under the toner image, the security feature being revealed only in case of a fraudulent alteration or removal of the toner image (forgery, counterfeiting, falsification...).

Miller et al. does not teach or suggest a liquid toner imaging composition comprising a fine particulate toner and a security ingredient. Indeed, a novel characteristic of the present claims is the composition of the liquid toner that comprises both fine particular toner and the above mentioned security ingredient. The advantage of this composition is that the reactant is able to act as a "security ingredient" because of the reaction that produces a security feature, which takes place beneath the printed toner image (comprising toner, binder and reactant). Thus the printed image appears as a conventional toner print. However, when the toner is removed or modified, the security feature remains on the substrate, revealing the forgery attempt.

The microcapsule-coated substrate disclosed in Miller can also be used to form a variety of imaging products (column 2, line 19 to column 3, line 2). These products are used in different imaging processes, but each of these processes includes a step in which certain of the microcapsules are ruptured by selective application of thermal energy to provide a temperature rise ΔT of at least 115°C per millisecond. The latent image formed by the ruptured capsules can then be developed in a number of different ways, as follows:

(a) In an ink transfer sheet, the microcapsules may contain a dye, ink, pigment or dye precursor. After rupturing certain of the capsules by exposing them to a thermal energy input, the sheet is pressed against a second sheet resulting in transfer of a visible image corresponding to the capsules that had been ruptured (column 2, lines 19-31).

(b) In a low cost gravure type of sheet, the microcapsules contain a low boiling or high vapor pressure solvent, or a gas. The sheet is exposed to a thermal energy input producing a field of ruptured capsules defining the latent image. The contents of the ruptured capsules then evaporate, leaving a gravure type of sheet. Ink can be squeegeed over the sheet to fill the voids created by the ruptured capsules. A second sheet can then be pressed against the latent image receiving sheet to effect transfer of an image corresponding to the ruptured capsules (column 2 lines 32-45).

(c) In a cryptic message receiving sheet, exposing the sheet to a thermal energy input results in a field of ruptured capsules. This field constitutes a latent image, which can be developed by application of fine toner particles. The toner particles adhere preferentially to the ruptured capsules, revealing the image (column 2 lines 46-58).

(d) In an imageable sheet, the microcapsules contain one of either a chromogen or a developer. Exposure to a thermal energy input ruptures some of the capsules and releases the chromogen or developer to form an invisible latent image. The image can then be made visible by application of a solvent or dispersion containing the complementary chromogen or developer (column 2 line 59 to column 3 line 2).

Therefore, although Miller discloses various imaging products, it does not disclose a liquid toner composition that is suitable for use in digital press imaging system. The various products disclosed in Miller are not intended or suitable for use in a digital press imaging system as recited in the present claims, in which a toner image is formed on a printable substrate by applying a liquid toner composition comprising a fine particulate toner dispersed in liquid vehicle together with a binder. Furthermore, none of the products or processes disclosed in Miller et al disclose or suggest the distinctive features of the instant invention as identified above.

Regarding feature A, this is illustrated in Exhibit A, which shows how a toner image and a security feature are formed on the substrate. It can be seen that these two images are entirely separate and independent from each other. The drawing also illustrates how the security feature is detectably retained on the substrate even if the toner image is removed. This prevents the fraudulent alteration of a document by removal of the toner image. Miller does not teach an imaging system in which two images are formed independently on a substrate. Only a single image is formed, as shown in the attached drawing. No security feature is retained on the substrate if that image is removed. Miller does not therefore disclose or suggest the security features provided by the present invention.

Regarding feature B, Miller does not disclose a liquid toner imaging composition. Miller discloses a coated substrate on which an image can be formed by a thermal input, not by application of a liquid toner.

Regarding feature C, none of the compositions disclosed in Miller include two separate imaging components for forming two separate images.

Regarding features D and E, the relevant features of the compositions disclosed in Miller are discussed below:

(a) A dye, ink, pigment or dye precursor is released from the ruptured capsules and transferred onto a second sheet. There is no disclosure either of a liquid toner or of a reactant and a complementary reactant.

(b) An image is formed by applying an ink to fill the voids left by the ruptured capsules. There is no disclosure either of a liquid toner or of a reactant and a complementary reactant.

(c) A latent image is developed by applying a particulate toner, which fills the voids left by the ruptured capsules. There is no disclosure of a liquid toner that is applied *selectively* to form a toner image. Instead, a particulate toner is applied to the *whole* surface of the sheet, which forms an image by adhering to the ruptured capsule sites. There is also no disclosure of a reactant and a complementary reactant.

(d) A latent image formed on the receiving sheet is made visible by applying a solvent or dispersion that contains either a chromogen or a developer. However, the solvent or dispersion does not contain a fine particulate toner. Furthermore, the solvent or dispersion is applied to the *whole* surface of the sheet. The process does not therefore involve the use of a liquid toner that contains a fine particulate toner and a security ingredient, and which is applied to form a toner image and a recognizable security feature.

Thus, none of the above-referenced processes or products disclosed in Miller discloses or suggests the liquid toner digital press imaging system or anticounterfeiting method recited in the present claims.

Combining the Miller reference with Hsu does not remedy the foregoing deficiencies. Hsu discloses a polymeric film that can be used in a digital printing press. However, Hsu does not disclose or suggest anything about a system for producing both a toner image and a security feature on a substrate, in which the security feature is detectably retained on the substrate even if the toner image is removed. Therefore, the combination of Miller with Hsu would not lead one having ordinary skill in the art to the liquid toner digital press imaging system or anticounterfeiting method recited in claims 9/10 and 16, respectively.

As noted in MPEP § 2143, "The rationale to support a conclusion that the claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination yielded nothing more than predictable results to one of ordinary skill in the art." *KSR v. Teleflex*, 550 U.S. at 398, 82 USPQ2d at 1395. As discussed above, neither Miller nor Hsu disclose or suggest a system for producing both a toner image and

a security feature on a substrate, in which the security feature is detectably retained on the substrate even if the toner image is removed. Thus, even when combined, these references would not produce the present invention.

Moreover, if Miller et al. and Hsu were combined, one of ordinary skill in the art would have printed a substrate comprising the complementary reactant with an imaging composition of a chromogen since the reaction "chromogen + acidic developer" produces a colored marking. Since Miller et al. does not discloses a single imaging composition used in combination with a specific secured substrate in order to obtain a security feature detectably retained in (or on) the substrate in the event of fraudulent alteration or removal of the toner image, one of ordinary skill in the art would not have added a fine particulate toner to the imaging composition. Furthermore, with regard to claim 10, one would not have used other security ingredients such as fluorescent or chemically-detectable images. Moreover, neither Miller et al. nor Hsu teach or suggest the combination of a common fine particulate toner and a reactant to obtain a reaction with a specific substrate in order to obtain *tamper evidence* in case of fraudulent alteration or removal of the toner image. Thus, the claims cannot be obvious over this combination of references.

In contrast to the cited references, the presently claimed printing system and anticounterfeiting method works without microcapsules and without application of a thermal energy input; involves a new imaging composition with a fine particulate toner and a security ingredient; and provides a secured system (substrate and imaging composition). Accordingly, the combination of Miller and Hsu does not support a *prima facie* showing of obviousness with respect to the presently pending claims.

In view of the comments presented above, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a).

CONCLUSION

Applicants submit that all claims are in condition for allowance. Should there be any questions concerning this application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 10/23/09

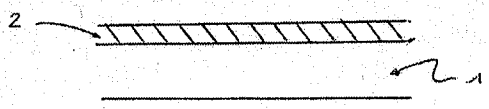
By: _____

Neil S. Bartfeld, Ph.D.
Registration No. 39,901
Agent of Record
Customer No. 20,995
(619) 235-8550

7943850
101309

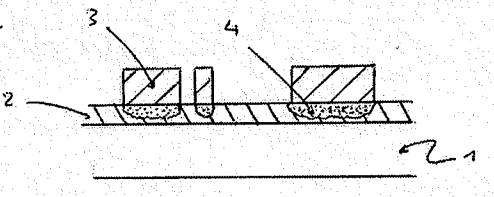
EXHIBIT A

INSTANT APPLICATION

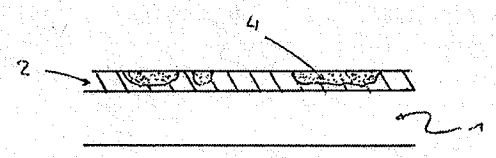


SUBSTRATE

1 : substrate
2 : complementary reactant
3 : toner image (fine particulate toner + binder + reactant)
4 : security feature (product of the reaction "reactant + complementary reactant")

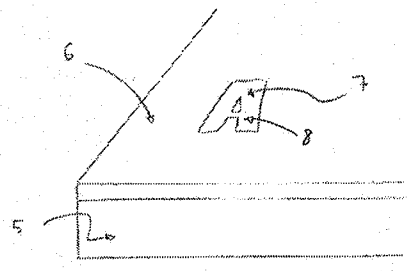


AFTER PRINTING



AFTER TONER REMOVAL/ ALTERATION

MILLER ET AL. (US 5,427,886)



5 : substrate
6 : chromogen microcapsule and acidic developer
7 : image (product of the reaction "chromogen + acidic developer")
8 : area of thermal energy selective application